

**Wetland Report (Revised 12/5/20)**  
**Proposed Hudson Logistics Center**  
**43 Steele Road**  
**Hudson, NH**

In response to comments received at the November 16, 2020 Conservation Commission Meeting the following report on the delineation and functional assessment of the wetlands on the proposed Hudson Logistics Center Site has been revised. The report now includes a wetland delineation data forms and additional evaluation for Ecological integrity as is required for the state wetland application. To avoid redundancy, photographs of the wetland have been excluded from this submittal, as has information on wildlife which has been superseded by the comprehensive Wildlife Habitat Evaluation prepared by Lucas Environmental, LLC (11/9/20)

## WETLAND DELINEATION

Various portions of the wetlands on this 273 acres property have been delineated and re-delineated several times by Gove Environmental Services personnel since 2005. For the current proposal, Brendan Quigley, NHCWS #249 re-flagged all wetland areas within the project area utilizing the following standards:

1. *US Army Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 (Jan 1987) **AND** *Regional Supplement to Corps of Engineers Wetland Delineation Manual; Northcentral and Northeast Region, Version 2.0, January 2012.*
2. *Field Indicators of Hydric Soils in the United States*, Version 8.2, 2018
3. *National Wetland Plant List*, Version 3.3 (2016).

Limited flagging along the access roads was completed in 2017 during early planning. The majority of the wetland delineation depicted on the *Hudson Logistics Center* plans was conducted in the fall 2019. All flagging was surveyed by Hayner Swanson, Inc., either in 2017 or recently in 2019/2020. ACOE wetland delineation data forms were prepared by request in late November and early December of 2020. Data forms for the proposed impact areas are attached.

The property has several extensive areas of wetland in addition to the large areas of manicured lawn that dominate the property. Other than the relatively undisturbed bank of the Merrimack River, which defines the entire 5,000-foot (+/-) western boundary of the property, wetlands are characterized by a long history of alteration predating the regulation of freshwater wetlands. Prior to construction of the golf course, the property was largely cleared and actively managed for agriculture like most of the surrounding land. The most substantial changes occurred between 1952 and 1965 during which intensive aggregate extraction and large scale alteration of the terrain was carried out to create the two 18-hole courses that exist today. During this time, both naturally occurring wetlands and wetlands which had already been modified by agricultural use underwent further of modification by clearing, filling, channelization, and excavation. Ponds were excavated in upland areas and along the course of Limit Brook and other wetlands in order to create water features suitable for the for the golf course landscape and to provide water for irrigation. Several of these excavations created isolated circular ponds but many other areas of water remain hydrologically connected forming a complex arrangement

of wetlands, channels, and waterbodies in the eastern portion of the site. A figure is included in the attachments depicting the current wetlands on a 1952 aerial photo, clearly demonstrating the alterations carried out to create the golf course.

These wetlands fall into two main categories. One is a largely forested wetland system in the northeast of the site that is associated with an unnamed stream flowing off-site to the north, through a culvert under the portion of Circumferential Highway. Second is a more diverse system of forested, scrub-shrub, emergent, and open water wetlands directly or indirectly associated with Limit Brook. This perennial stream flows onto the property in the southeast corner, makes a single meander and leaves the site to the south. Both streams and all their associated wetlands are tributary to the Merrimack River. The excavated and isolated ponds throughout the golf course also clearly lie in the watershed of the Merrimack River but are not directly connected to each other or to the other wetlands. These ponds make up a third general category of resource on the property.

In order to provide more detailed descriptions and functional assessment of these wetlands they have been broken up into eight (8) evaluation areas based on connectivity and classification. The extent of each evaluation area and its reference number is depicted on the attached figure.

## WETLAND FUNCTIONS & VALUES

A wetland function and value assessment was conducted on the six evaluation areas using the US Army Corps Highway Methodology guidelines. This methods considers 13 categories of function or value within a particular wetland area:

- 1. Groundwater recharge/discharge:** This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where ground water can be discharged to the surface.
- 2. Floodflow Alteration:** This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
- 3. Fish and Shellfish Habitat:** This function considers the effectiveness of seasonal or permanent water bodies associated with the wetland in question for fish and shell fish habitat.
- 4. Water Quality—Sediment/Toxicant/Pathogen Retention:** This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens.
- 5. Water Quality—Nutrient Removal/Retention/Transformation:** This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.
- 6. Production Export:** This function relates to the effectiveness of the wetland to produce food or usable products for human, or other living organisms.
- 7. Sediment/Shoreline Stabilization:** This function relates to the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.
- 8. Wildlife Habitat:** This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and or migrating species must be considered.

9. **Recreation:** This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland, whereas non-consumptive opportunities do not.
10. **Educational/Scientific Value:** This value considers the effectiveness of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.
11. **Uniqueness/Heritage:** This value relates to the effectiveness of the wetland or its associated water bodies to produce certain special values. Special values may include such things as archeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geological features.
12. **Visual Quality/Aesthetics:** This value relates to the visual and aesthetic qualities of the wetland.
13. **Threatened or Endangered Species Habitat:** This value relates to the effectiveness of the wetland or associated water bodies to support threatened or endangered species

Functions are self-sustaining properties of wetlands, which exist in the absence of human involvement. Values refers to the benefits gained by human society from a given wetland or ecosystem and their inherit functions. Functions and values identified as “primary” have been determined to be significant features of the wetland being evaluated. This does not necessarily indicate the wetland performs these functions or values at a significant level in comparison to other wetlands in the region or even near the site. Each area was also evaluated for “Ecological Integrity”, a concept specifically included in wetland functions and values as defined by state law. Rather than relating to a single function or value, ecological integrity considers the overall health and completeness of the wetland system in the context of the larger ecosystem. Generally speaking, a wetland in an untouched area of wilderness would have the highest ecological integrity while one in the middle of a busy city would have a very low ecological integrity. A discussion of each evaluation area on site and their functions and values is provided in the sections below. Data forms used in the evaluation are attached along with a key (Appendix A) to the qualifiers and considerations represented by the numbers in the Rational column.

#### **Evaluation Area 1**

This is the Merrimack River and its steep bank which forms the western boundary of the project site. This resource is classified as lower perennial riverine, with a permanently flooded, unconsolidated bottom (R2UBH)<sup>1</sup>. The steep bank extending from the edge of the maintained golf course down to the river edge is forested with mature pine, oaks, and lesser amounts of birch and maple.

#### Functions/Values

The Merrimack River is a major New Hampshire river that supports numerous functions and values at a high level. *Wildlife habitat, Aesthetic and Recreational Value, Cultural Significance, and Shoreline Stabilization* are among the Primary Functions and values of the River in this area. Most relevant and significant for this property is likely the Shoreline Stabilization value. Rather than being supported by the river itself this value is supported by the forested high bank between the high-water mark and the top of the bank at the level of the golf course. This area serves to stabilize the shoreline contain peak flow during flood events.

---

<sup>1</sup> Cowardin, L. M., 1979. *Classification of Wetlands and Deepwater Habitats in the United States*. Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service.

The Ecological Integrity of the river is diminished by the high amount of development in its watershed, dams, and historic loss of floodplain habitat. As a major river however, and with the improvements in water quality they have been realized in the past decades, the ecological integrity is relatively high compared to the other resources on this site and in the immediate area.

## **Evaluation Area 2**

This evaluation area consists of a complex of wetlands occupying the northeast corner of the site. The predominant wetland type is forested wetland dominated by Red Maple with an understory of Witch Hazel, Highbush Blueberry, and Nannyberry. Royal Fern, Cinnamon Fern, and Sensitive Fern are common in the herbaceous layer. These wetlands are classified as deciduous, forested wetland, with saturated hydrology (PFO1B).

Water flows into the wetland from the surrounding uplands and from stormwater discharges associated with the adjacent development, including a large detention basin and drainage ditch. Several excavated ditches in the wetland and at the edge of the existing golf course direct water a small unnamed stream, which is depicted as perennial on the USGS map. Alterations and ditching in this area make the original path and extent of this stream unclear. Currently, a natural channel only exists within the wetland just south the highway before it flows off site through a culvert under the roadway. The stream ultimately drains to the Merrimack River approximately 1600' to the northwest of the site.

### Functions/Values

The Primary functions of the wetlands in Evaluation Area 2 include *Flood Flow Alteration*, *Sediment/Toxicant Retention*, and *Nutrient Removal/Retention/Transformation*. Wildlife habitat and Production Export are also supported but have not been considered primary functions.

The Primary functions are derived from a combination of proximity to development and association with a stream that is tributary to the Merrimack River. Significant runoff from adjacent developed areas is directed to these wetlands numerous opportunities for sediment trapping and nutrient transformation before leaving the site. The constricted outlet and basin character of the lower portion of the wetland also provides some storage during periods of significant rainfall, therefore serving a flood follow alteration function. Both of these functions are somewhat diminished overall by the ditches that have been excavated in the wetland and its position low in the watershed.

Wildlife habitat and production export function is derived from the variety of hard and soft mast producing species as well as the well-developed multi-canopy character of the forested wetland. These functions are limited, however, by the proximity of development and transportation infrastructure on all sides of the wetland.

The Ecological Integrity of this wetland is very low considering proximate development, disturbance, and the long culvert which effectively separates it from downstream areas including the Merrimack River.

## **Evaluation Area 3**

This primarily forested wetland shares many characteristics with the lower part of Evaluation Area 2. It is a Red Maple dominated swamp, with an understory species including Winterberry, Highbush Blueberry, Royal Fern, Cinnamon Fern, and Skunk Cabbage. The long term hydrology of the wetland is likely saturated/seasonally flooded but it is currently flooded due to a beaver dam at its southern. The

classification of this wetland is therefore, deciduous, forested, wetland with a saturated and seasonally flooded hydrology that is influenced by beaver (PFO1Eb).

The forested wetland drains south through an excavated channel connecting it to Evaluation Area 5 and ultimately Limit Brook. The beaver dam that is currently maintaining a higher water level in the wetland is located at the beginning of this channel. Water levels in the channel vary seasonally, resembling a liner pond at higher water levels, and more of an emergent wetland at in the middle of the summer. Given its narrow shape and limited water depth, even at high water, this area has been classified as a Semi-permanently flooded excavated emergent wetland with a saturated scrub shrub edge (PEM2Fx/PSS1B). Emergent vegetation is dominated by a variety of sedges, rushes and wildflowers. Dominant species along its shrub edge include Silky dogwood, Meadowsweet, Gray Birch, and Glossy Buckthorn.

An area of hydric soils and wetland hydrology also extend from the forested portion of the wetland into the maintained turf of the adjacent golf course. This area has been evaluated separately as Evaluation Area 3.1 given its very different characteristics and function.

The Ecological Integrity of this wetland is very low considering proximate development and disturbance to the wetland itself.

#### Functions/Values

The primary functions of Evaluation Area 3 are *Nutrient Attenuation*, *Flood flow Alteration*, and *Wildlife Habitat*. Because of its emergent and forested characteristics that occur between managed golf course turf and areas of ponded water, Nutrient Attenuation is an important function of this area. Excess nutrients in runoff are taken up and held as vegetation rather than entering areas of open water. The restricted outlet at the beginning of the narrow channel, even in the absence of the current beaver dam, increases retention time, supporting nutrient transformation. Heavy algae growth in the currently flooded wetland provides strong evidence that the wetland does carry out this function. This storage capacity created by the restricted outlet also supports flood flow alteration function. Wildlife habitat and Production Export are present in the form of numerous soft-mast producing species in the scrub-shrub stratum that are likely utilized by numerous song birds and small mammals. The shallow pond-like character of the connecting ditch, as well as the flooded forested wetland are suitable to amphibians and turtles. Vernal pool breeding activity, though very modest, was in fact noted in the forested wetland during the spring of 2020. This is discussed further in the Vernal Pool section.

#### **Evaluation Area 3.1**

The wetland being evaluated in this area consists maintained lawn area extending between the forested wetland in Area 3 to one of the ponds in Area 5. Both hydric soils and signs of wetland hydrology were documented in this area, and although vegetation consists of golf course turf, this is an artificially maintained condition that would cease if mowing ended. This wetland has been designated as saturated wet meadow with a "farmed" modifier (PEM2Bf). This area may have represented the extent of wetland in this area predating large scale alteration of the landscape or could have developed due to these alterations and the new drainage patterns that it created.

#### Functions/Values

Though technically qualifying as wetlands, these areas of maintained lawn hold very little, if any, functional wetland value. Other than intermittent ponding, there is no surface water, no wildlife

habitat, or unique or interesting features. The primary function of this wetland is limited *Groundwater Discharge*.

Ecological integrity of this wetland is virtually nonexistent due to the fact that no natural vegetation has exists. It only qualifies as a wetland in terms of its hydrology and hydric soils.

#### **Evaluation Area 4**

This area is located in the eastern portion of the project site just south of Evaluation Area 2 but separated by the access driveway for Parcel 234/4, currently occupied by Mercury Systems. The Evaluation Area 4 consists of forested, Red Maple dominated wetland similar to that described in Evaluation Areas 2 and 3 but with stable saturated hydrology (PFO1B). These forested wetlands drain south toward Limit Brook but are not directly associated with the waterway.

#### Functions/Values

The Primary functions of the wetlands in Evaluation Area 4 include *Flood Flow Alteration, Sediment/Toxicant Retention, and Nutrient Removal/Retention/Transformation*. Wildlife habitat and Production Export, and Groundwater Discharge are also supported but have not been considered primary functions.

#### **Evaluation Area 5**

This evaluation area consists of wetlands associated with Limit Brook which is a perennial tributary to the Merrimack River. The stream enters the site from the east first flowing through a complex of relatively natural emergent and scrub shrub wetlands bordered by areas of golf course turf. These wetlands are areas dominated by cattail, numerous sedges, rushes, Silky Dogwood, and Arrow-Wood. These wetlands are classified as PEM1E/PSS1E. The stream then flows into two interconnected ponds that were excavated during construction of the golf course as water features. Their water level is maintained by a small dam located adjacent to Steele Road. These ponds are too small and shallow to be classified as lacustrine features so they are classified under the Palustrine system as areas of Unconsolidated Bottom, in this case also excavated and impounded (PUBHxh). The ponds have fringe of scrub-shrub and emergent saturated wetlands (PEM2/PSS1E) but are otherwise surrounded by golf-course. Dominant species in the fringe wetland areas include Speckled Alder, Purple Loosestrife, Reed Canary Grass, and numerous other meadow species such as goldenrods and asters.

#### Functions/Values

The primary functions of the wetlands in Evaluation Area 5 are *Wildlife Habitat, Nutrient Attenuation, and Flood flow Alteration*. The variety of wetland types present in this wetland complex, in association with a perennial stream and ponds, supports a number wildlife habitat functions. These range from the presence of numerous soft-mast producing species in the scrub-shrub stratum which provides foraging habitat for numerous songbirds and small mammals, to the ponds, typically suitable for warm water fish species, amphibians, and turtles. Though several barriers exist to free travel along the Limit Brook corridor it likely does provide access between the habitats on this site and a large utility right-of-way located to the south which extends do to the Merrimack River.

Because of its association with a golf course turf and a perennial stream, Nutrient Attenuation is an important function of this area. Excess nutrients in runoff are taken up and held as vegetation rather than entering areas of open water. Additionally, the broad nature of the areas on either side of the stream provide ample floodwater storage during major rain events and during spring snowmelt. This

wetland complex also has several secondary functions including Shoreline Stabilization and Production Export.

Despite the proximate development and disturbance, the ecological integrity of this wetland is moderate due to its association with Limit Brook and connection to a number of other wetland types.

### **Evaluation Area 6**

This area is the continued flow path of Limit Brook extending from the south side of Steele Road to the southeastern property boundary. It has been evaluated separately since these wetlands also lie within the 100-year floodplain of Limit Brook and therefore qualify as a Priority Resource Area. It consists of a shallow pond, an area of ditched wet meadow, and a more natural emergent and scrub-scrub shrub wetland extending to the southern property line. The excavated pond is similar to those in Area 5 but appears shallower and more likely to have a vegetation in the water. It has therefore been classified as an area of Palustrine Aquatic Bed wetland (PABHxh). A narrow ditched channel extends from a pipe at the downstream end of the pond through maintained turf. Dominant species in the fringe wetland around the pond and this ditched wet meadow are consistent with Area 5 although shrubs are largely absent so they have been classified as saturated emergent (PEM2B). The final portion of wetland in the evaluation area is a largely natural emergent and scrub-scrub shrub wetland through which Limit Brook flows unimpeded off site to the south. This wetland is similar to the wetland in Area 4 where Limit Brook enters the site. It is numerous sedges, rushes, ferns, Silky Dogwood, and Arrow-Wood. This wetland is classified as PEM1E/PSS1E.

### Functions/Values

The primary functions of the wetlands in Evaluation Area 6 are, *Flood flow Alteration*, *Nutrient Attenuation*, and *Wildlife Habitat*. This area lies within the mapped 100 year floodplain associated with Limit Brook so the pond and wetland areas are clearly important flood storage areas. The pond, with its constricted outlet and narrow, densely vegetated swale, act as an effective water quality treatment feature. Together they are able to intercept and treat runoff from the expanse of managed turf surrounding them prior to releasing it to more natural wetlands downstream. These more natural areas hold the greater wildlife value, with numerous food sources, cover, and connectivity to off-site habitat areas. This wetland complex also supports Shoreline Stabilization and Production Export.

Despite the proximate development and disturbance, the ecological integrity of this wetland is moderate. Though several crossings exist, the flow of Limit Brook is relatively intact as are several adjacent wetland resources and floodplain.

### **Evaluation Area 7**

This Evaluation Area consists of the 4 isolated excavated ponds located in the throughout the course. Like the ponds discussed in Areas 5 and 6, these ponds were excavated during construction of the golf course to create water features. Unlike the ponds along the course of Limit Brook however, these ponds are hydrologically isolated features. Only a very narrow fringe of emergent wetland exists around their nearly circular perimeter and this is subject to regular mowing. Species in this fringe wetland include Purple Loosestrife, Reed Canary Grass, Soft Rush, and common meadow species such as asters and goldenrods. The ponds have been classified as permanently flooded unconsolidated bottom wetlands created by excavation (PUBHx).

### Functions/Values

The function and value of these ponds is limited by their small size, isolated hydrology, and setting surrounded by managed golf course turf. Their primary function is *Groundwater Recharge/Discharge*. A secondary function is very limited Wildlife Habitat for species such as eastern painted turtles, green frogs, mallards and Canada geese which have been observed utilizing the ponds and their margins.

### **Evaluation Area 8**

This is a small, isolated depression located at the edge of a fairway in the southwest corner of the project site. This area may have been created or adapted to function as a detention pond as there are several pipes entering the area. Soil are sandy and it does not appear to hold water for significant periods of time but also does not have an obvious outlet. Vegetation, while sparse, includes sensitive fern, Purple Loosestrife, and various weedy species. This area may be classified as an intermittently flooded, excavated, wet meadow (PEM2Jx)

### Functions/Values

The primary functions of this wetland are *Groundwater Recharge* and *Sediment/Toxicant Retention*. Both these functions are derived from the fact that the area receives runoff from the surrounding golf course and infiltrates it through a sandy substrate. This provides groundwater recharge and prevents sediment and from entering the Merrimack River which lies close by.

These isolated ponds play a very limited role on the overall ecosystem due to their location on an active golf course. Their Ecological Integrity is therefore very low.

## **VERNAL POOLS**

A vernal pool investigation was conducted in the spring of 2020. Wetland areas were investigated for the presence of suitable ponding and evidence of vernal pool breeding activity, primarily through counting of egg masses. The topography of the site and character of the wetlands did not suggest extensive vernal pool habitat. The permanently flooded ponds on the site likely support fish populations and certainly do support large populations of predatory frogs. These type of areas a very rarely suitable for vernal pool breeding activity and none was identified in these areas. The majority of the forested and emergent wetlands on the site lack depressions with adequate depth and seasonal hydrology.

Only one area of vernal pool breeding was noted on the property. This was located in the north end of the forested wetland that crosses through the Mercury Systems property. Its location is depicted on the Wetland Overview Figure and on the plans. Wood Frog chorusing was heard throughout the wetland which was flooded on March 26 but no egg mases were found. A total of 14 wood frog egg masses were identified in a single area at the northern end of this wetland during a follow up survey of on April 4, 2020.

The current flooding of this wetland is being maintained by a beaver dam at its outlet so it is not clear that this entire forested wetland represents suitable stable habitat for vernal pool breeding. Without the impoundment the wetland would only be saturated, as can be seen in the 2012 photo that is used in the Wetland Resources Overview figure contained in the Figures Section. The area where egg masses were identified may in fact be the only location where a suitable pool exists without the beaver impoundment.



## ATTACHMENTS

1. 1952 Aerial Photo/Wetlands
2. Wetland Evaluation Areas Figure
3. ACOE Wetland Delineation Data Forms
4. Function and Value Data Forms



1952 Aerial Photo  
Wetland Overlay

Hudson Logistics Center  
Steele Road  
Hudson NH



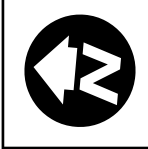
Grove Environmental Services, Inc.  
# Confidential Drawn By: J. L. H. Brown NHT 0303 00279044

Date: 4/19/20



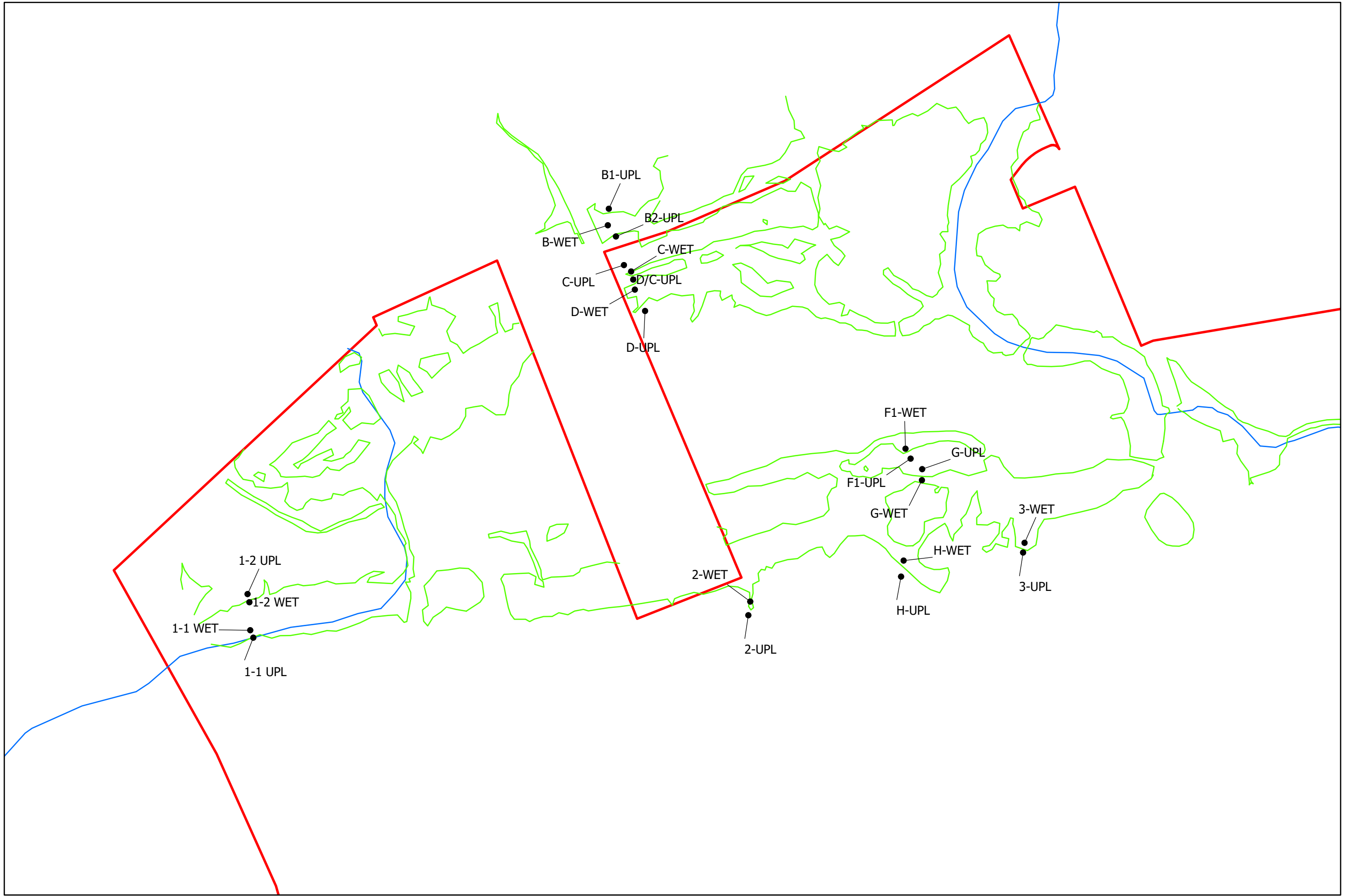
**Evaluation Area**

- EA 1
- EA 2
- EA 3
- EA 3.1
- EA 4
- EA 5
- EA 6
- EA 7
- EA 8
- streams



Hudson Logistics Center  
 Steele Road  
 Hudson NH

Wetland Evaluation Areas



**Wetland Data Plot locations**

**Hudson Logistics Center  
Steele Road  
Hudson NH**



**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 1-1\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area 1</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: 1-1\_UPL

<u>Tree Stratum</u> (Plot size: <u>30'r</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Pinus strobus</i></u>	60	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)																
2. <u><i>Quercus rubra</i></u>	15	No	FACU																	
3. <u><i>Acer rubrum</i></u>	15	No	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	90	=Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'r</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Corylus cornuta</i></u>	10	Yes	FACU	<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>95</u></td> <td>x 4 = <u>380</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>115</u></td> <td>(A) <u>435</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.78</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>95</u>	x 4 = <u>380</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>115</u>	(A) <u>435</u> (B)	Prevalence Index = B/A = <u>3.78</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species <u>15</u>	x 3 = <u>45</u>																			
FACU species <u>95</u>	x 4 = <u>380</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>115</u>	(A) <u>435</u> (B)																			
Prevalence Index = B/A = <u>3.78</u>																				
2. <u><i>Prunus serotina</i></u>	10	Yes	FACU																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	20	=Total Cover																		
<u>Herb Stratum</u> (Plot size: <u>5'r</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Osmundastrum cinnamomeum</i></u>	5	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	5	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
				<b>Hydrophytic Vegetation Present?</b> Yes <u>  </u> No <u>  X  </u>																

Remarks: (Include photo numbers here or on a separate sheet.)

**SOIL**

Sampling Point 1-1\_UPL

<b>Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)</b>								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10yr 3/2	100					Sandy	
9-18	10yr 5/3	95	10yr 5/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes       No

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 1-1\_WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): concave Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area 1</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ Water-Stained Leaves (B9) ___ High Water Table (A2)      ___ Aquatic Fauna (B13) <u>X</u> Saturation (A3)      ___ Marl Deposits (B15) ___ Water Marks (B1)      ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)      ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)      ___ Thin Muck Surface (C7) <u>X</u> Inundation Visible on Aerial Imagery (B7)      ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
--	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>15</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>10</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**VEGETATION** – Use scientific names of plants.

Sampling Point: 1-1\_WET

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	30	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
	<u>30</u>	=Total Cover		<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>7</u></td> <td>x 4 = <u>28</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>92</u></td> <td>(A) <u>253</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.75</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5</u>	x 1 = <u>5</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>7</u>	x 4 = <u>28</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>92</u>	(A) <u>253</u> (B)	Prevalence Index = B/A = <u>2.75</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>5</u>	x 1 = <u>5</u>																			
FACW species <u>20</u>	x 2 = <u>40</u>																			
FAC species <u>60</u>	x 3 = <u>180</u>																			
FACU species <u>7</u>	x 4 = <u>28</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>92</u>	(A) <u>253</u> (B)																			
Prevalence Index = B/A = <u>2.75</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
1. <u>Rubus allegheniensis</u>	2	Yes	FACU																	
2. <u>Rubus idaeus</u>	5	Yes	FACU																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
	<u>7</u>	=Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____																
1. <u>Solidago rugosa</u>	25	Yes	FAC																	
2. <u>Lythrum salicaria</u>	5	No	OBL																	
3. <u>Impatiens capensis</u>	20	Yes	FACW																	
4. <u>Toxicodendron radicans</u>	5	No	FAC																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
	<u>55</u>	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
	=Total Cover																			

Remarks: (Include photo numbers here or on a separate sheet.)

**SOIL**

Sampling Point 1-1\_WET

<b>Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)</b>								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	2.5y 2.5/1	98					Sandy	high organic matter
9-16	5y 5/2	98	10yr 4/6	2	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes  No

**Remarks:**

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 1-2\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area 1</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks:	

**VEGETATION** – Use scientific names of plants.

Sampling Point: 1-2\_UPL

<u>Tree Stratum</u> (Plot size: <u>30'r</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Betula populifolia</u>	20	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>12.5%</u> (A/B)																
2. <u>Quercus rubra</u>	20	Yes	FACU																	
3. <u>Prunus serotina</u>	15	Yes	FACU																	
4. <u>Populus tremuloides</u>	15	Yes	FACU																	
5. <u>Acer rubrum</u>	10	No	FAC																	
6. _____																				
7. _____																				
	<u>80</u>	=Total Cover		<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>30</u></td> <td>x 3 = <u>90</u></td> </tr> <tr> <td>FACU species <u>70</u></td> <td>x 4 = <u>280</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>110</u></td> <td>(A) <u>420</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.82</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>30</u>	x 3 = <u>90</u>	FACU species <u>70</u>	x 4 = <u>280</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>110</u>	(A) <u>420</u> (B)	Prevalence Index = B/A = <u>3.82</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>30</u>	x 3 = <u>90</u>																			
FACU species <u>70</u>	x 4 = <u>280</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>110</u>	(A) <u>420</u> (B)																			
Prevalence Index = B/A = <u>3.82</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'r</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Elaeagnus umbellata</u>	10	Yes	UPL																	
2. <u>Prunus serotina</u>	15	Yes	FACU																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>25</u>	=Total Cover																		
<u>Herb Stratum</u> (Plot size: <u>5'r</u> )				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes <u>  </u> No <u>X</u>																
1. _____	5	Yes																		
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>5</u>	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____ )																				
1. <u>Vitis labrusca</u>	5	Yes	FACU																	
2. _____																				
3. _____																				
4. _____																				
	<u>5</u>	=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)

**SOIL**

Sampling Point 1-2\_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-5	10yr 3/2	100					Sandy
5-13	10yr 4/6	100					Sandy
13-20	2.5y 5/4	100					Sandy

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____      No <u>X</u>
---	--

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 1-2\_WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): concave Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area 1</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ Water-Stained Leaves (B9) ___ High Water Table (A2)      ___ Aquatic Fauna (B13) <u>X</u> Saturation (A3)      ___ Marl Deposits (B15) ___ Water Marks (B1)      ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)      ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)      ___ Thin Muck Surface (C7) <u>X</u> Inundation Visible on Aerial Imagery (B7)      ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
--	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>15</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>10</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: 1-2\_WET

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	25	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)																
2. <u>Betula populifolia</u>	5	No	FAC																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>30</u>	=Total Cover		<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>70</u></td> <td>x 3 = <u>210</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>80</u></td> <td>(A) <u>240</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>70</u>	x 3 = <u>210</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>80</u>	(A) <u>240</u> (B)	Prevalence Index = B/A = <u>3.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species <u>70</u>	x 3 = <u>210</u>																			
FACU species <u>5</u>	x 4 = <u>20</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>80</u>	(A) <u>240</u> (B)																			
Prevalence Index = B/A = <u>3.00</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)																				
1. <u>Frangula alnus</u>	30	Yes	FAC																	
2. <u>Betula populifolia</u>	10	Yes	FAC																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>40</u>	=Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Osmundastrum cinnamomeum</u>	5	Yes	FACW																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>5</u>	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
1. <u>Vitis labrusca</u>	5	Yes	FACU																	
2. _____																				
3. _____																				
4. _____																				
	<u>5</u>	=Total Cover																		
Remarks: (Include photo numbers here or on a separate sheet.)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																

**SOIL**

Sampling Point 1-2\_WET

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	2.5y 2.5/1	100					Sandy	high organic matter
8-15	5y 5/2	95	7.5yr 4/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <u>X</u> No _____
---	---

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))



**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 2\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area 2</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: 2\_UPL

<u>Tree Stratum</u> (Plot size: <u>30'r</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Pinus strobus</u>	15	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. <u>Quercus rubra</u>	25	Yes	FACU																	
3. <u>Acer rubrum</u>	20	Yes	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	60	=Total Cover		<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>42</u></td> <td>x 3 = <u>126</u></td> </tr> <tr> <td>FACU species <u>45</u></td> <td>x 4 = <u>180</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>87</u></td> <td>(A) <u>306</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.52</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>42</u>	x 3 = <u>126</u>	FACU species <u>45</u>	x 4 = <u>180</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>87</u>	(A) <u>306</u> (B)	Prevalence Index = B/A = <u>3.52</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>42</u>	x 3 = <u>126</u>																			
FACU species <u>45</u>	x 4 = <u>180</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>87</u>	(A) <u>306</u> (B)																			
Prevalence Index = B/A = <u>3.52</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'r</u> )																				
1. <u>Frangula alnus</u>	10	Yes	FAC																	
2. <u>Prunus serotina</u>	5	Yes	FACU																	
3. <u>Acer rubrum</u>	10	Yes	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	25	=Total Cover																		
<u>Herb Stratum</u> (Plot size: <u>5'r</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Dryopteris intermedia</u>	2	No	FAC																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	2	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____ )				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
1. _____																				
2. _____																				
3. _____																				
4. _____																				
=Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>  </u> No <u>X</u>																

Remarks: (Include photo numbers here or on a separate sheet.)

**SOIL**

Sampling Point 2\_UPL

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10yr 3/2	100					Sandy	
12-18	10yr 5/4	100					Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____ No <u>X</u>
---	---

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 2\_WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): swale Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area 2</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1)                      _____ Water-Stained Leaves (B9) _____ High Water Table (A2)                      _____ Aquatic Fauna (B13) _____ Saturation (A3)                                      _____ Marl Deposits (B15) _____ Water Marks (B1)                                      _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3)                                      _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4)                                      _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5)                                      _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7)                      _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
--	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: 2\_WET

<u>Tree Stratum</u> (Plot size: <u>10' x30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>15</u></td> <td>(A) <u>40</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.67</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>15</u>	(A) <u>40</u> (B)	Prevalence Index = B/A = <u>2.67</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>15</u>	(A) <u>40</u> (B)																			
Prevalence Index = B/A = <u>2.67</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10'x15'</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Acer rubrum</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
_____ =Total Cover																				
<u>Herb Stratum</u> (Plot size: <u>5'r</u> )				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____																
1. <u>Osmundastrum cinnamomeum</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Dryopteris intermedia</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ =Total Cover																				
<u>Woody Vine Stratum</u> (Plot size: _____ )																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)  
 narrow wetland area. Tree and shub plots adjusted to wid of wetkand (~10' wide)

**SOIL**

Sampling Point 2\_WET

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10yr 2/1	98	7.5yR 3/3	2	C	M	Sandy	ox rhizo
8-10	2.5y 4/1	98	7.5yR 3/3	2	C	M	Sandy	
10-15	2.5y 5/2	95	10yr 4/4	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No \_\_\_\_\_

**Remarks:**

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 3-UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): near flat Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area 3</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located in an area of maintained golf course turf and consists of cultivated sod forming grass, likley kentucky bluegrass. The area is not likley to support hydrophytic vegeation under normal circumstanses based on appaeance of cultivated lawn and lack of signs of hydrology	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: 3-UPL

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Maintained lawn (kentucky bluegrass)</u>	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	_____ =Total Cover			<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes _____      No <u>X</u>	

Remarks: (Include photo numbers here or on a separate sheet.)  
see remarks in summary of findings



**SOIL**

Sampling Point 3-UPL

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10yr 3/2	100					Sandy	
10-16	2.5y 5/3	95	10yr 5/6	5	C	M	Sandy	
16-20	2.5y 6/3	95	10yr 5/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

- |  |  |  |  |
|--|--|--|--|
| <b>Hydric Soil Indicators:</b>                             |  | <b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>          |  |
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)       |  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)       | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)     |  |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)              | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  |  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)             | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)     |  |
| <input type="checkbox"/> Stratified Layers (A5)            | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                        | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)           |  |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                            | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)   |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                         | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                      | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)   |  |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                          | <input type="checkbox"/> Red Parent Material (F21)                   |  |
| <input type="checkbox"/> Sandy Redox (S5)                  | <input type="checkbox"/> Marl (F10) (LRR K, L)                           | <input type="checkbox"/> Very Shallow Dark Surface (F22)             |  |
| <input type="checkbox"/> Stripped Matrix (S6)              |  | <input type="checkbox"/> Other (Explain in Remarks)                  |  |
| <input type="checkbox"/> Dark Surface (S7)                 |  |  |  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____ No <u>X</u>
---	---

Remarks:  
 Soil has been disturbed by regrading for construction of the golf course

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: 3-WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): near flat Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area 3</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located in an area of maintained golf course turf and consists of cultivated sod forming grass, likley kentucky bluegrass. The area is very likley to support hydrophytic vegeation under normal circumstances based on observatuion of sod stressed by persistent ponding and vegetation in adjacnt non-maintained areas	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)                      ___ Water-Stained Leaves (B9) ___ High Water Table (A2)                      ___ Aquatic Fauna (B13) ___ Saturation (A3)                                      ___ Marl Deposits (B15) ___ Water Marks (B1)                                      ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)                                      ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)                                      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)                                      ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7)                      ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) <u>X</u> Saturation Visible on Aerial Imagery (C9) <u>X</u> Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
--	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: 3-WET

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Maintained lawn (kentucky bluegrass)</u>	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	_____ =Total Cover			<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	

Remarks: (Include photo numbers here or on a separate sheet.)  
see remarks in summary of findings

**SOIL**

Sampling Point 3-WET

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10yr 2/2	100					Sandy	oxidized rhizospheres
3-13	2.5y 2.5/1	100					Sandy	high organic content
13-16	5y 5/1	90	2.5y 5/6	10	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No \_\_\_\_\_

Remarks:  
Soil has been disturbed by regrading for construction of the golf course

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: B\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area B</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point:   B\_UPL  

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Pinus strobus</u>	25	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>  1  </u> (A)  Total Number of Dominant Species Across All Strata: <u>  8  </u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>  12.5%  </u> (A/B)																
2. <u>Quercus rubra</u>	25	Yes	FACU																	
3. <u>Betula lenta</u>	20	Yes	FACU																	
4. <u>Betula populifolia</u>	10	No	FAC																	
5. <u>Acer rubrum</u>	5	No	FAC																	
6. _____																				
7. _____																				
	<u>  85  </u>	=Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>  0  </u></td> <td>x 1 = <u>  0  </u></td> </tr> <tr> <td>FACW species <u>  2  </u></td> <td>x 2 = <u>  4  </u></td> </tr> <tr> <td>FAC species <u>  17  </u></td> <td>x 3 = <u>  51  </u></td> </tr> <tr> <td>FACU species <u>  82  </u></td> <td>x 4 = <u>  328  </u></td> </tr> <tr> <td>UPL species <u>  2  </u></td> <td>x 5 = <u>  10  </u></td> </tr> <tr> <td>Column Totals: <u>  103  </u></td> <td>(A) <u>  393  </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>  3.82  </u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>  0  </u>	x 1 = <u>  0  </u>	FACW species <u>  2  </u>	x 2 = <u>  4  </u>	FAC species <u>  17  </u>	x 3 = <u>  51  </u>	FACU species <u>  82  </u>	x 4 = <u>  328  </u>	UPL species <u>  2  </u>	x 5 = <u>  10  </u>	Column Totals: <u>  103  </u>	(A) <u>  393  </u> (B)	Prevalence Index = B/A = <u>  3.82  </u>	
Total % Cover of:	Multiply by:																			
OBL species <u>  0  </u>	x 1 = <u>  0  </u>																			
FACW species <u>  2  </u>	x 2 = <u>  4  </u>																			
FAC species <u>  17  </u>	x 3 = <u>  51  </u>																			
FACU species <u>  82  </u>	x 4 = <u>  328  </u>																			
UPL species <u>  2  </u>	x 5 = <u>  10  </u>																			
Column Totals: <u>  103  </u>	(A) <u>  393  </u> (B)																			
Prevalence Index = B/A = <u>  3.82  </u>																				
1. <u>Pinus strobus</u>	5	Yes	FACU																	
2. <u>Prunus serotina</u>	5	Yes	FACU																	
3. <u>Frangula alnus</u>	2	No	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>  12  </u>	=Total Cover																		
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 - Rapid Test for Hydrophytic Vegetation <u>  </u> 2 - Dominance Test is >50% <u>  </u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <u>  </u> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Osmundastrum cinnamomeum</u>	2	Yes	FACW																	
2. <u>Carex pensylvanica</u>	2	Yes	UPL																	
3. <u>Pinus strobus</u>	2	Yes	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>  6  </u>	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
1. _____																				
2. _____																				
3. _____																				
4. _____																				
				<b>Hydrophytic Vegetation Present?</b> Yes <u>  </u> No <u>  X  </u>																
Remarks: (Include photo numbers here or on a separate sheet.)																				

**SOIL**

Sampling Point      B\_UPL

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10yr 2/1						Sandy	
5-11	10yr 3/2						Sandy	
11-17	10yr 4/4						Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes \_\_\_\_\_ No   X  

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: B\_WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): concave Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area B</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
--	--

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**VEGETATION** – Use scientific names of plants.

Sampling Point: B\_WET

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	45	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. <u>Pinus strobus</u>	5	No	FACU																	
3. <u>Betula lenta</u>	5	No	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>55</u>	=Total Cover		<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>7</u></td> <td>x 2 = <u>14</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>14</u></td> <td>x 4 = <u>56</u></td> </tr> <tr> <td>UPL species <u>6</u></td> <td>x 5 = <u>30</u></td> </tr> <tr> <td>Column Totals: <u>87</u></td> <td>(A) <u>280</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.22</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>7</u>	x 2 = <u>14</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>14</u>	x 4 = <u>56</u>	UPL species <u>6</u>	x 5 = <u>30</u>	Column Totals: <u>87</u>	(A) <u>280</u> (B)	Prevalence Index = B/A = <u>3.22</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>7</u>	x 2 = <u>14</u>																			
FAC species <u>60</u>	x 3 = <u>180</u>																			
FACU species <u>14</u>	x 4 = <u>56</u>																			
UPL species <u>6</u>	x 5 = <u>30</u>																			
Column Totals: <u>87</u>	(A) <u>280</u> (B)																			
Prevalence Index = B/A = <u>3.22</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
1. <u>Frangula alnus</u>	5	Yes	FAC																	
2. <u>Ilex verticillata</u>	5	Yes	FACW																	
3. <u>Euonymus alatus</u>	2	No	UPL																	
4. <u>Pinus strobus</u>	2	No	FACU																	
5. _____																				
6. _____																				
7. _____																				
	<u>14</u>	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Osmundastrum cinnamomeum</u>	2	No	FACW																	
2. <u>Carex pensylvanica</u>	2	No	UPL																	
3. <u>Mitchella repens</u>	2	No	FACU																	
4. <u>Toxicodendron radicans</u>	5	Yes	FAC																	
5. <u>Dryopteris intermedia</u>	5	Yes	FAC																	
6. <u>Brachyelytrum aristosum</u>	2	No	UPL																	
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>18</u>	=Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____																
<u>Woody Vine Stratum</u> (Plot size: _____)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				

Remarks: (Include photo numbers here or on a separate sheet.)

**SOIL**

Sampling Point B\_WET

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10yr 2/1	98					Sandy	ox rhizo
9-12	10yr 4/1	98	7.5yr 3/3	2	C	M	Sandy	
12-18	2.5y 5/2	8	10yr 4/6	20	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			
<input type="checkbox"/> Sandy Redox (S5)			
<input type="checkbox"/> Stripped Matrix (S6)			
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b>	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks:  
This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: B2\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area B</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: B2\_UPL

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u><i>Pinus strobus</i></u>	65	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.0%</u> (A/B)
2. <u><i>Betula lenta</i></u>	10	No	FACU	
3. <u><i>Acer rubrum</i></u>	5	No	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
	<u>80</u>	=Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u><i>Quercus rubra</i></u>	5	Yes	FACU	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>7</u> x 3 = <u>21</u> FACU species <u>82</u> x 4 = <u>328</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>94</u> (A) <u>359</u> (B) Prevalence Index = B/A = <u>3.82</u>
2. <u><i>Prunus serotina</i></u>	2	Yes	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	<u>7</u>	=Total Cover		
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u><i>Osmundastrum cinnamomeum</i></u>	5	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Dryopteris intermedia</i></u>	2	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>7</u>	=Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
				<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>  X  </u>
Remarks: (Include photo numbers here or on a separate sheet.)				

**SOIL**

Sampling Point      B2\_UPL

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10yr 2/1						Sandy	
5-9	10yr 3/2						Sandy	
9-17	10yr 4/4						Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b>	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: C\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area C</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point:     C\_UPL    

<u>Tree Stratum</u> (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Pinus strobus</u>	40	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>    1    </u> (A)  Total Number of Dominant Species Across All Strata: <u>    4    </u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>    25.0%    </u> (A/B)																
2. <u>Quercus rubra</u>	10	No	FACU																	
3. <u>Betula lenta</u>	20	Yes	FACU																	
4. <u>Acer rubrum</u>	2	No	FAC																	
5. _____																				
6. _____																				
7. _____																				
	<u>    72    </u> =Total Cover																			
<u>Sapling/Shrub Stratum</u> (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Crataegus crus-galli</u>	5	Yes	FAC	<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>    0    </u></td> <td>x 1 = <u>    0    </u></td> </tr> <tr> <td>FACW species <u>    2    </u></td> <td>x 2 = <u>    4    </u></td> </tr> <tr> <td>FAC species <u>    7    </u></td> <td>x 3 = <u>    21    </u></td> </tr> <tr> <td>FACU species <u>    70    </u></td> <td>x 4 = <u>    280    </u></td> </tr> <tr> <td>UPL species <u>    20    </u></td> <td>x 5 = <u>    100    </u></td> </tr> <tr> <td>Column Totals: <u>    99    </u></td> <td>(A) <u>    405    </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>    4.09    </u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>    0    </u>	x 1 = <u>    0    </u>	FACW species <u>    2    </u>	x 2 = <u>    4    </u>	FAC species <u>    7    </u>	x 3 = <u>    21    </u>	FACU species <u>    70    </u>	x 4 = <u>    280    </u>	UPL species <u>    20    </u>	x 5 = <u>    100    </u>	Column Totals: <u>    99    </u>	(A) <u>    405    </u> (B)	Prevalence Index = B/A = <u>    4.09    </u>	
Total % Cover of:	Multiply by:																			
OBL species <u>    0    </u>	x 1 = <u>    0    </u>																			
FACW species <u>    2    </u>	x 2 = <u>    4    </u>																			
FAC species <u>    7    </u>	x 3 = <u>    21    </u>																			
FACU species <u>    70    </u>	x 4 = <u>    280    </u>																			
UPL species <u>    20    </u>	x 5 = <u>    100    </u>																			
Column Totals: <u>    99    </u>	(A) <u>    405    </u> (B)																			
Prevalence Index = B/A = <u>    4.09    </u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>    5    </u> =Total Cover																			
<u>Herb Stratum</u> (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Osmundastrum cinnamomeum</u>	2	No	FACW	<b>Hydrophytic Vegetation Indicators:</b> <u>    </u> 1 - Rapid Test for Hydrophytic Vegetation <u>    </u> 2 - Dominance Test is >50% <u>    </u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <u>    </u> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <u>    </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Dennstaedtia punctilobula</u>	20	Yes	UPL																	
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>    22    </u> =Total Cover																			
<u>Woody Vine Stratum</u> (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____				<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
	_____ =Total Cover																			

Remarks: (Include photo numbers here or on a separate sheet.)

**SOIL**

Sampling Point   C\_UPL  

<b>Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)</b>								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10yr 2/1						Sandy	
2-6	10yr 4/4						Sandy	
6-13	10yr 5/4						Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b>	<b>Hydric Soil Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Type: _____			
Depth (inches): _____			

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))



## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: C\_WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): concave Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area C</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
--	--

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: C\_WET

<u>Tree Stratum</u> (Plot size: <u>width of wet</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	20	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
	20	=Total Cover		<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>30</u></td> <td>(A) <u>90</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center">Prevalence Index = B/A = <u>3.00</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>30</u>	(A) <u>90</u> (B)	Prevalence Index = B/A = <u>3.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species <u>20</u>	x 3 = <u>60</u>																			
FACU species <u>5</u>	x 4 = <u>20</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>30</u>	(A) <u>90</u> (B)																			
Prevalence Index = B/A = <u>3.00</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>width of wet</u> )																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		=Total Cover																		
<u>Herb Stratum</u> (Plot size: <u>5'r</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Osmundastrum cinnamomeum</u>	5	Yes	FACW																	
2. <u>Gaultheria procumbens</u>	5	Yes	FACU																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
	10	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____ )																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)  
 narrow wetland area. Tree and shub plots adjusted to wid of wetkand (~15' wide)

**SOIL**

Sampling Point C\_WET

<b>Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)</b>								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10yr 2/1	100					Sandy	ox rhizo
8-10	10yr 4/1	98	7.5yr 3/3	2	C	M	Sandy	
10-15	2.5y 5/2	95	10yr 5/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes X      No \_\_\_\_\_

**Remarks:**

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: D-C\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area C &amp; D</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks:	

**VEGETATION** – Use scientific names of plants.

Sampling Point: D-C\_UPL

<u>Tree Stratum</u> (Plot size: <u>15'x30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Pinus strobus</i></u>	<u>20</u>	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20.0%</u> (A/B)																
2. <u><i>Quercus rubra</i></u>	<u>20</u>	Yes	FACU																	
3. <u><i>Betula lenta</i></u>	<u>10</u>	Yes	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>50</u>	=Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'x15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Betula lenta</i></u>	<u>10</u>	Yes	FACU	<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>2</u></td> <td>x 2 = <u>4</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>62</u></td> <td>x 4 = <u>248</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>69</u></td> <td>(A) <u>267</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.87</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>2</u>	x 2 = <u>4</u>	FAC species <u>5</u>	x 3 = <u>15</u>	FACU species <u>62</u>	x 4 = <u>248</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>69</u>	(A) <u>267</u> (B)	Prevalence Index = B/A = <u>3.87</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>2</u>	x 2 = <u>4</u>																			
FAC species <u>5</u>	x 3 = <u>15</u>																			
FACU species <u>62</u>	x 4 = <u>248</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>69</u>	(A) <u>267</u> (B)																			
Prevalence Index = B/A = <u>3.87</u>																				
2. <u><i>Acer rubrum</i></u>	<u>5</u>	Yes	FAC																	
3. <u><i>Pinus strobus</i></u>	<u>2</u>	No	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>17</u>	=Total Cover																		
<u>Herb Stratum</u> (Plot size: <u>5'r</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Osmundastrum cinnamomeum</i></u>	<u>2</u>	No	FACW	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>2</u>	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
				<b>Hydrophytic Vegetation Present?</b> Yes <u>    </u> No <u>  X  </u>																

Remarks: (Include photo numbers here or on a separate sheet.)  
 tree and shrub lots adjusyted to the width of narrow upland area ~15'

**SOIL**

Sampling Point  D-C\_UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10yr 2/1	100					Sandy	
4-14	7.5yr 2.5/2	100					Sandy	
14-230	10yr 4/3	90	10yr 3/6	10			Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes \_\_\_\_\_ No X

**Remarks:**

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: D\_WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): concave Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area D</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) <u>X</u> High Water Table (A2) _____ Aquatic Fauna (B13) <u>X</u> Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>8</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point:  D\_WET

<u>Tree Stratum</u> (Plot size: <u> 30'r </u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u> Acer rubrum </u>	<u> 20 </u>	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u> 4 </u> (A) Total Number of Dominant Species Across All Strata: <u> 4 </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 100.0% </u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
	<u> 20 </u> =Total Cover			<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u> 5 </u></td> <td>x 1 = <u> 5 </u></td> </tr> <tr> <td>FACW species <u> 20 </u></td> <td>x 2 = <u> 40 </u></td> </tr> <tr> <td>FAC species <u> 20 </u></td> <td>x 3 = <u> 60 </u></td> </tr> <tr> <td>FACU species <u> 0 </u></td> <td>x 4 = <u> 0 </u></td> </tr> <tr> <td>UPL species <u> 0 </u></td> <td>x 5 = <u> 0 </u></td> </tr> <tr> <td>Column Totals: <u> 45 </u></td> <td>(A) <u> 105 </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u> 2.33 </u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u> 5 </u>	x 1 = <u> 5 </u>	FACW species <u> 20 </u>	x 2 = <u> 40 </u>	FAC species <u> 20 </u>	x 3 = <u> 60 </u>	FACU species <u> 0 </u>	x 4 = <u> 0 </u>	UPL species <u> 0 </u>	x 5 = <u> 0 </u>	Column Totals: <u> 45 </u>	(A) <u> 105 </u> (B)	Prevalence Index = B/A = <u> 2.33 </u>	
Total % Cover of:	Multiply by:																			
OBL species <u> 5 </u>	x 1 = <u> 5 </u>																			
FACW species <u> 20 </u>	x 2 = <u> 40 </u>																			
FAC species <u> 20 </u>	x 3 = <u> 60 </u>																			
FACU species <u> 0 </u>	x 4 = <u> 0 </u>																			
UPL species <u> 0 </u>	x 5 = <u> 0 </u>																			
Column Totals: <u> 45 </u>	(A) <u> 105 </u> (B)																			
Prevalence Index = B/A = <u> 2.33 </u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u> 15'r </u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u> Vaccinium corymbosum </u>	<u> 5 </u>	Yes	FACW																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
	<u> 5 </u> =Total Cover																			
<u>Herb Stratum</u> (Plot size: <u> 5'r </u> )				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes <u> X </u> No <u>     </u>																
1. <u> Impatiens capensis </u>	<u> 15 </u>	Yes	FACW																	
2. <u> Symplocarpus foetidus </u>	<u> 5 </u>	Yes	OBL																	
3. <u> UKN carex </u>	<u> 2 </u>	No	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
	<u> 22 </u> =Total Cover																			
<u>Woody Vine Stratum</u> (Plot size: <u>            </u> )																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
	_____ =Total Cover																			

Remarks: (Include photo numbers here or on a separate sheet.)



**SOIL**

Sampling Point   D\_WET  

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	2.5y 2.5/1	100					Muck	ox rhizo

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b>	<b>Hydric Soil Present?</b> Yes <u>  X  </u> No <u>      </u>
Type: _____	
Depth (inches): _____	

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 12/2/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: D\_UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): convex Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area D</u>
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)                      ___ Water-Stained Leaves (B9) ___ High Water Table (A2)                      ___ Aquatic Fauna (B13) ___ Saturation (A3)                              ___ Marl Deposits (B15) ___ Water Marks (B1)                            ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2)                      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3)                            ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4)                      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5)                            ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point:  D\_UPL

<u>Tree Stratum</u> (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Pinus strobus</u>	30	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u> 1 </u> (A) Total Number of Dominant Species Across All Strata: <u> 5 </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> 20.0% </u> (A/B)
2. _____				
3. <u>Betula lenta</u>	20	Yes	FACU	
4. <u>Betula populifolia</u>	10	No	FAC	
5. _____				
6. _____				
7. _____				
	60	=Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot size: _____ )				
1. <u>Euonymus alatus</u>	5	Yes	UPL	
2. <u>Acer rubrum</u>	5	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	10	=Total Cover		
<u>Herb Stratum</u> (Plot size: _____ )				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Dennstaedtia punctilobula</u>	20	Yes	UPL	
2. <u>Osmundastrum cinnamomeum</u>	5	No	FACW	
3. <u>Pinus strobus</u>	2	No	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	27	=Total Cover		
<u>Woody Vine Stratum</u> (Plot size: _____ )				<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
1. _____				
2. _____				
3. _____				
4. _____				
				<b>Hydrophytic Vegetation Present?</b> Yes <u>    </u> No <u> X </u>

Remarks: (Include photo numbers here or on a separate sheet.)

**SOIL**

Sampling Point     D\_UPL    

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10yr 2/1						Sandy	
3-4	10yr 3/3						Sandy	
4-12	10yr 4/6						Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Marl (F10) (LRR K, L)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Dark Surface (S7)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____ No <u>X</u>
---	---

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: F1-UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): near flat Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area F</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located in an area of maintained golf course turf and consists of cultivated sod forming grass, likley kentucky bluegrass. The area is not likley to support hydrophytic vegeation under normal circumstanses based on appaeance of cultivated lawn and lack of signs of hydrology	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
--	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>16</u> Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: F1-UPL

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Maintained lawn (kentucky bluegrass)</u>	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	_____ =Total Cover			<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes _____      No <u>X</u>	

Remarks: (Include photo numbers here or on a separate sheet.)  
 see remarks in summary of findings

**SOIL**

Sampling Point F1-UPL

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10yr 2/2	100					Sandy	oxidized rhizospheres
4-5	2.5y 5/2	95	2.5y 5/6	5	C	M	Sandy	
5-13	2.5y 6/3	95	2.5y 5/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes \_\_\_\_\_ No X

Remarks:  
Soil has been disturbed by regrading for construction of the golf course

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: F1-WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): near flat Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area F</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located at the edge of the maintained golf course. Groudncover cosists of turf but tyrees and sshuibs ayt the edge of the plot represent normal circumstanses	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
--	--

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>16</u> Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**VEGETATION** – Use scientific names of plants.

Sampling Point: F1-WET

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u><i>Acer rubrum</i></u>	15	Yes	FAC		
2. <u><i>Frangula alnus</i></u>	20	Yes	FAC		
3. <u><i>Cornus amomum</i></u>	5	No	FACW		
4. <u><i>Lyonia ligustrina</i></u>	5	No	FACW		
5. <u><i>Spiraea latifolia</i></u>	2	No	FACW		
6. _____					
7. _____					
	47	=Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
				=Total Cover	
<u>Herb Stratum</u> (Plot size: _____)					
1. <u>Maintained lawn (<i>kentucky bluegrass</i>)</u>					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
				=Total Cover	
<u>Woody Vine Stratum</u> (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
				=Total Cover	

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>12</u>	x 2 = <u>24</u>
FAC species <u>35</u>	x 3 = <u>105</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>47</u> (A)	<u>129</u> (B)
Prevalence Index = B/A = <u>2.74</u>	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0<sup>1</sup>

   4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

   Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?**      Yes X      No X

Remarks: (Include photo numbers here or on a separate sheet.)  
 plot is located at the edge of the maintained golf course. Shrub and tree layers represent normal circumstances while herbaceous layer is maintained lawn

**SOIL**

Sampling Point F1-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10yr 2/1	100					Sandy	oxidized rhizospheres
3-13	5y 6/2	95	2.5y 5/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes       No

Remarks:

Soil has been disturbed by regrading for construction of the golf course

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: G-UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): near flat Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area G</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located in an area of maintained golf course turf and consists of cultivated sod forming grass, likley kentucky bluegrass. The area is not likley to support hydrophytic vegeation under normal circumstanses based on appaeance of cultivated lawn and lack of signs of hydrology	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
--	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: G-UPL

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Maintained lawn (kentucky bluegrass)</u>	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	_____ =Total Cover			<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes _____      No <u>X</u>	

Remarks: (Include photo numbers here or on a separate sheet.)  
 see remarks in summary of findings

**SOIL**

Sampling Point G-UPL

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10yr 2/2	100					Sandy	oxidized rhizospheres
5-13	2.5y 5/3	95	10yr 5/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes \_\_\_\_\_ No X

Remarks:  
Soil has been disturbed by regrading for construction of the golf course

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: G-WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): shallow swale Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area G</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located in an area of maintained golf course turf and consists of cultivated sod forming grass, likley kentucky bluegrass. The area is very likley to support hydrophytic vegeation under normal circumstanses based on observatuion of sod stressed by peristent ponding and vegetation in adjacnt non-maintained areas	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) <u>X</u> High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) <u>X</u> Saturation Visible on Aerial Imagery (C9) <u>X</u> Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>12</u> Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: G-WET

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Maintained lawn (kentucky bluegrass)</u>	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	_____ =Total Cover			<b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	

Remarks: (Include photo numbers here or on a separate sheet.)  
see remarks in summary of findings

**SOIL**

Sampling Point      G-WET

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10yr 2/2	95	7.5yr 3/4	5	C	M	Sandy	oxidized rhizospheres
5-12	2.5y 5/2	60	2.5y 5/6	10	C	M	Sandy	includes arrea of mixed 2.5y4/2
12-18	10yr 2/1	100					Muck	buried organic

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

- |  |  |  |
|--|--|--|
| <p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input checked="" type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surface (S7)</p> | <p><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)</p> <p><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)</p> <p><input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Marl (F10) (LRR K, L)</p> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</p> <p><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)</p> <p><input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> |
|--|--|--|

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p><b>Restrictive Layer (if observed):</b></p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p><b>Hydric Soil Present?</b>      Yes <input checked="" type="checkbox"/>      No <input type="checkbox"/></p>
--	--

Remarks:  
Soil has been disturbed by regrading for construction of the golf course



## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: H-UPL  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): near flat Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Impact Area H</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located in an area of maintained golf course turf and consists of cultivated sod forming grass, likley kentucky bluegrass. The area is not likley to support hydrophytic vegeation under normal circumstanses based on appaeance of cultivated lawn and lack of signs of hydrology	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
--	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: H-UPL

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Maintained lawn (kentucky bluegrass)</u>	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	_____ =Total Cover			<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes _____      No <u>X</u>	

Remarks: (Include photo numbers here or on a separate sheet.)  
see remarks in summary of findings

**SOIL**

Sampling Point     H-UPL    

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10yr 3/3						Sandy	
3-13	2.5y 5/3	95	10yr 5/6	5	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surface (S7)</p>		<p><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)</p> <p><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)</p> <p><input type="checkbox"/> High Chroma Sands (S11) (LRR K, L)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> Marl (F10) (LRR K, L)</p>		<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)</p> <p><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</p> <p><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)</p> <p><input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	
--	--	--	--	--	--

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p><b>Restrictive Layer (if observed):</b></p> <p>Type: _____</p> <p>Depth (inches): _____</p>		<p><b>Hydric Soil Present?</b>      Yes <input type="checkbox"/>      No <input checked="" type="checkbox"/></p>	
--	--	--	--

Remarks:  
Soil has been disturbed by regrading for construction of the golf course

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hudson Logistics Center City/County: Hudson Sampling Date: 11/25/20  
 Applicant/Owner: Hillwood Development State: NH Sampling Point: H-WET  
 Investigator(s): Brendan Quigley, Gove Environmental Services Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Lower Merrimack River Valley Local relief (concave, convex, none): near flat Slope %: \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR R Lat: see map Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM2Bf

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Impact Area H</u>
Remarks: (Explain alternative procedures here or in a separate report.) Trasect is located in an area of maintained golf course turf and consists of cultivated sod forming grass, likley kentucky bluegrass. The area is very likley to support hydrophytic vegeation under normal circumstances based on observatuion of sod stressed by peristent ponding and vegetation in adjacnt non-maintained areas	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) <u>X</u> High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) <u>X</u> Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) <u>X</u> Saturation Visible on Aerial Imagery (C9) <u>X</u> Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
---	---

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>10</u> Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: H-WET

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Maintained lawn (kentucky bluegrass)</u>	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	_____ =Total Cover			<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	_____ =Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	

Remarks: (Include photo numbers here or on a separate sheet.)  
see remarks in summary of findings

**SOIL**

Sampling Point     H-WET    

<b>Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)</b>								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10yr 3/2						Sandy	oxidized rhizospheres
3-5	2.5y 5/2	90	2.5y 5/6	10	C	M	Sandy	
5-12	2.5y 4/2	95	10yr 4/6	5	C	M	Sandy	
12-16	2.5y 6/2	90	2.5y 5/6	10	C	M	Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b>	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____	
Depth (inches): _____	

Remarks:  
 Soil has been disturbed by regrading for construction of the golf course



# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 50

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA1	LOCATION: (LAT/ LONG) 42.716057/71.437079
WETLAND AREA: 5,000 +/- LF Bank	DOMINANT WETLAND SYSTEMS PRESENT: Riverine
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? numerous, Merrimck River	COWARDIN CLASS: R2UHB1
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? low	IS THE WETLAND PART OF: <input checked="" type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island?
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	IS THE WETLAND HUMAN-MADE? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
PROPOSED WETLAND IMPACT TYPE: NO IMPACT	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT AREA: [REDACTED]	
<b>SECTION 4 - WETLANDS FUNCTIONS AND VALUES* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol> <p>First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.</p>	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)



FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Major River
2	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,3,5,11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3,4,5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	This function is supported by wetlands associated with waterways, not necessarily the major river itself but storage is present due to high banks
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4,7,17	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Major River
6	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	known ES associations, Nashua Prime Wetland
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8,9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	applies to forested bank of river
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,3,4,5,6,10,11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	major river, production and export is high
9	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,8,12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	major river with many accessible viewing locations, important part of the landscape
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,10,16	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	applies to vegetated bank of river only
11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,3,6,8,12,14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Forested bank of the river is extremely important in maintaining channel stability
12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,11,19,20,26,30	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Major NH river with extensive historical, societal, and natural heritage associations
13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,4,5,7,9,12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	numerous boating, fishing, and viewing opportunities

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6,7,8,21	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	habitat at this location is Riverine, river corridor provides connection to numerous other habitats
----	--	----------	--	---

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

8					
---	--	--	--	--	--

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM: Merrimack River

STREAM TYPE (ROSGEN): F

HAVE FISHERIES BEEN DOCUMENTED?

Yes  No

DOES THE STREAM SYSTEM APPEAR STABLE?

Yes  No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: see Functions and Values in section 4

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
11	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

13	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)



**WETLANDS FUNCTIONAL ASSESSMENT  
WORKSHEET**  
Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

**SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)**

ADJACENT LAND USE: golf course, comercial development

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 50

**SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA2	LOCATION: (LAT/ LONG) 42.724385/71.426943
WETLAND AREA: ~16 ac.	DOMINANT WETLAND SYSTEMS PRESENT: Forested
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 2	COWARDIN CLASS: PFO1B
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? low	IS THE WETLAND PART OF: <input type="checkbox"/> A wildlife corridor or <input checked="" type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: Impact Area 1 Fill/Stream Crossing	PROPOSED WETLAND IMPACT AREA: 9,125 SF/249 LF

#### **SECTION 4 - WETLANDS FUNCTIONS AND VALUES\* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:

1. Ecological Integrity (from RSA 482-A:2, XI)
2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)
3. Fish & Aquatic Life Habitat (from USACE Highway Methodology: Fish & Shellfish Habitat)
4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)
5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)
6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)
7. Nutrient Trapping/Retention & Transformation (from USACE Highway Methodology: Nutrient removal)
8. Production Export (Nutrient) (from USACE Highway Methodology)
9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)
10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)
11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)
12. Uniqueness/Heritage (from USACE Highway Methodology)
13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)
14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)

First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE *The Highway Methodology Workbook Supplement*. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in *The Highway Methodology Workbook Supplement*, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective".

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

“Important Notes” are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	extensive alteration, impacted by drainage, surrounded by development
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	disturbed wetland, no access
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	perennial status of stream is questionable
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4,5,6,7,8,9,11,13,15,18	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	constricted outlet and basin top provide storage
5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no known ES, disturbed
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3,4, 5, 6, 7, 8, 12,13	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	organic soils, retention, dense vegetation, complex flow path. -diminished by ditching and disturbance
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,8,12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	forested wetland with mast producing trees and berry producing shrubs
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	disturbed wetland with limited viewing opportunity
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,5,10,13,16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	retention, dense vegetation, complex flow path. -diminished by ditching and disturbance
11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	dense vegetation stabilizes stream during minor flooding
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	disturbed wetland, common, no known heritage
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10,11,19	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	some habitat provided by mix of canopy structure and food sources -limited by adjacent development on all sides
----	--	----------	--	---

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)



8	█	█	█	█	█
---	---	---	---	---	---

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM: Unnamed Perennial

STREAM TYPE (ROSGEN): E

HAVE FISHERIES BEEN DOCUMENTED?

Yes  No

DOES THE STREAM SYSTEM APPEAR STABLE?

Yes  No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: stream asseed as part of the wetland system

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
11	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

13	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)



# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA3	LOCATION: (LAT/ LONG) 42.720666/71.428526
WETLAND AREA: ~7 ac.	DOMINANT WETLAND SYSTEMS PRESENT: Forested
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? none	COWARDIN CLASS: PFO1Eb/PEM2Fx/PSS1B
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? low	IS THE WETLAND PART OF: <input checked="" type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: Impact Area F Fill	PROPOSED WETLAND IMPACT AREA: 6,850 SF
<b>SECTION 4 - WETLANDS FUNCTIONS AND VALUES* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol> <p>First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.</p>	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	extensive alteration, impacted by proximity of golf course
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	disturbed wetland
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	permanence of flooding in excavated section is questionable
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4,5,6,7,8,9,11,13,15,18	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	constricted outlet and basin topography provide storage
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10,13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	no apparent inlet, signs of discharge at north end
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	no known ES, disturbed
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3,4, 5, 6, 7, 8, 12,13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	heavy nutrient input, organic soils, retention, dense vegetation, complex flow path.
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,8,12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	forested/and shrub wetland with berry producing shrubs, emergent with wildflower species
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	disturbed wetland with limited viewing opportunity
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,5,10,13,16	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	retention, dense vegetation, complex flow path, limited sources of sediment.
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	not directly associated with flowing water
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	disturbed wetland, common, no known heritage
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	none
14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8,9,10,11,19,20	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	interconnected variety of wetland types including emergent, overland access to open water

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

				-diminished by proximity to golf course
--	--	--	--	---

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	3/26/20 4/4/20	Wood Frog 14 egg masses		unknown, currently impounded by beaver	wetland is flooded by beaver activity, areial photos from past years indicate this is not permanent, area at north end where egg masses were foind is likely the the vernal pool heavy nutrient and algae
2					
3					
4					
5					
6					

7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM:  STREAM TYPE (ROSGEN):

HAVE FISHERIES BEEN DOCUMENTED?  Yes  No  
 DOES THE STREAM SYSTEM APPEAR STABLE?  Yes  No

OTHER KEY ON-SITE FUNCTIONS OF NOTE:

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>

11	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
13	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)





# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA3.1	LOCATION: (LAT/ LONG) 42.720666/71.428526
WETLAND AREA: ~2 ac.	DOMINANT WETLAND SYSTEMS PRESENT: Maintained wet Lawn
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? none	COWARDIN CLASS: PEM2BF
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? low	IS THE WETLAND PART OF: <input type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: Impact Area 3 & G-J Fill	PROPOSED WETLAND IMPACT AREA: 28,310 SF
<b>SECTION 4 - WETLANDS FUNCTIONS AND VALUES* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol> <p>First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective".</p>	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

“Important Notes” are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	maintateined golf course turf, graded and modified soil profile, no real wetland function or value in current condition.
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
4	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	appears to be a groundwater seep area
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
----	--	------------	---	------------

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property. “Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

8					
---	--	--	--	--	--

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM:  STREAM TYPE (ROSGEN):

HAVE FISHERIES BEEN DOCUMENTED?  Yes  No DOES THE STREAM SYSTEM APPEAR STABLE?  Yes  No

OTHER KEY ON-SITE FUNCTIONS OF NOTE:

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
11	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

13	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)



# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course, comercial development, residential

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA4	LOCATION: (LAT/ LONG) 42.719680/71.424429
WETLAND AREA: ~8 ac.	DOMINANT WETLAND SYSTEMS PRESENT: Forested
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 0	COWARDIN CLASS: PFO1B
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? low	IS THE WETLAND PART OF: <input checked="" type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: Impact Areas B-E Fill	PROPOSED WETLAND IMPACT AREA: 23,325
<b>SECTION 4 - WETLANDS FUNCTIONS AND VALUES* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol> <p>First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.</p>	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)



FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Intact forested wetland but adjacvnt to development and golf course
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	common forested wetland area
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no surface water
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5,6,7,9,13,15	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	restricted outlet flat topo and slow flow to Limit Brook
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	signs of GW seep
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no known ES
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3,4, 5, 6, 7, 12,13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	organic soils, slopw difuse flow, constricted outlet
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,8,12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	forested wetland with mast producing trees and berry producing shrubs
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	common forested wetland
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,3,4,5,9,10,13,14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	organic soils, slopw difuse flow, constricted outlet
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no surface directly associated surface water
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	common forested wetland no known heritage
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7,8,10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	some habitat provided by forest but not wetland specific

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1					
2					
3					
4					
5					
6					
7					
8					

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM:  STREAM TYPE (ROSGEN):

HAVE FISHERIES BEEN DOCUMENTED?  Yes  No  
 DOES THE STREAM SYSTEM APPEAR STABLE?  Yes  No

OTHER KEY ON-SITE FUNCTIONS OF NOTE:

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
11	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
13	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="text"/>

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)



# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course, residential development

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA5	LOCATION: (LAT/ LONG) 42.724385/71.426943
WETLAND AREA: ~10 ac.	DOMINANT WETLAND SYSTEMS PRESENT: Emergent/Scrub-Shrub/Pond
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 1	COWARDIN CLASS: PEM1E/PSS1E/PUBHxh
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? low	IS THE WETLAND PART OF: <input checked="" type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: NO IMPACTS	PROPOSED WETLAND IMPACT AREA: [REDACTED]
<b>SECTION 4 - WETLANDS FUNCTIONS AND VALUES* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol> <p>First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective".</p>	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

“Important Notes” are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	extensive alteration, impacted by excavation, impoundment and adjacent development
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	altered wetland
3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,8,-11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	supported in Impounded areas and possibly in Limit Brook diminished by barriers to connectivity
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4,5,6,7,8,9,11,13,15,16,17,18	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	dense vegetated areas provide some natural floodplain, ponds provide storage, constricted outlet
5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no known ES, altered
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,4,5,6,8,11,13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	deeper water areas, dense vegetation,, constricted outlet, high nutrient area
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,8,11,12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	berry producing shrubs, detritus, transport by stream
9	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	multiple wetland types able to be viewed, emergent and meadow vegetation, diminished by golf course landscape
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,3,4,5,10,11,16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	retention, deep water areas, dense vegetation
11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	dense vegetation stabilizes stream during minor flooding
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	altered wetland, no known heritage

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	none
14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6,7,8,11,12,19,21	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	diversity of wetland types including pond and emergent connected by stream

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1					
2					
3					
4					
5					
6					



7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM: Limit Brook

STREAM TYPE (ROSGEN): E

HAVE FISHERIES BEEN DOCUMENTED?

Yes  No

DOES THE STREAM SYSTEM APPEAR STABLE?

Yes  No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: stream assessed as part of the wetland system

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

11	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
13	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)



# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA6	LOCATION: (LAT/ LONG) 42.714301/71.425996
WETLAND AREA: ~4 ac.	DOMINANT WETLAND SYSTEMS PRESENT: Emergent/Scrub-Shrub/Pond
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 1	COWARDIN CLASS: PEM1E/PSS1E/PABHxh
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? low	IS THE WETLAND PART OF: <input checked="" type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: NO IMPACTS	PROPOSED WETLAND IMPACT AREA: [REDACTED]
<b>SECTION 4 - WETLANDS FUNCTIONS AND VALUES* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol> <p>First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective".</p>	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

“Important Notes” are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	extensive alteration, impacted by excavation, impoundment and adjacent development
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	altered wetland
3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,8,-11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	supported in Impounded areas and possibly in Limit Brook diminished by barriers to connectivity
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4,5,6,7,8,9,11,13,15,16,17,18	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	within 100 year floodplain
5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no known ES, altered
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,4,5,6,8,11,13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	deeper water areas, dense vegetation, constricted outlet, high nutrient area
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,8,11,12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	berry producing shrubs, detritus, transport by stream
9	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	multiple wetland types able to be viewed, emergent and meadow vegetation, diminished by golf course landscape
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,3,4,5,10,11,16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	retention, deep water areas, dense vegetation
11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	dense vegetation stabilizes stream during minor flooding
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	altered wetland, no known heritage
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	none

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6,7,8,11,12,19,21	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	diversity of wetland types including pond and emergent connected by stream
----	--	-------------------	--	--

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

8	█	█	█	█	█
---	---	---	---	---	---

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM: <b>Limit Brook</b>	STREAM TYPE (ROSGEN): <b>E</b>
HAVE FISHERIES BEEN DOCUMENTED? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	DOES THE STREAM SYSTEM APPEAR STABLE? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: **stream assessed as part of the wetland system**

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
11	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

13	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)





# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA7	LOCATION: (LAT/ LONG) multiple , see plans/
WETLAND AREA: ~1.5 ac.	DOMINANT WETLAND SYSTEMS PRESENT: Manmade Pond
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? none	COWARDIN CLASS: PUBHx
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No if not, where does the wetland lie in the drainage basin? 	IS THE WETLAND PART OF: <input type="checkbox"/> A wildlife corridor or <input checked="" type="checkbox"/> A habitat island?
	IS THE WETLAND HUMAN-MADE? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: Impact Areas 4-6 Fill	PROPOSED WETLAND IMPACT AREA: 44,730 SF

#### **SECTION 4 - WETLANDS FUNCTIONS AND VALUES\* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:

1. Ecological Integrity (from RSA 482-A:2, XI)
2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)
3. Fish & Aquatic Life Habitat (from USACE Highway Methodology: Fish & Shellfish Habitat)
4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)
5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)
6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)
7. Nutrient Trapping/Retention & Transformation (from USACE Highway Methodology: Nutrient removal)
8. Production Export (Nutrient) (from USACE Highway Methodology)
9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)
10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)
11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)
12. Uniqueness/Heritage (from USACE Highway Methodology)
13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)
14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)

First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE *The Highway Methodology Workbook Supplement*. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in *The Highway Methodology Workbook Supplement*, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective".

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

“Important Notes” are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade ponds in a managed landscape of golf course
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	golf course water features
3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	may support fish species but very low quality nutrient rich, low Ox conditions
4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no inlet or outlet
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4,15	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	fluctuating water level, no inflow or outflow
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	golf course water features
7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no inlet
8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	very small, maintained edges
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	golf course water features
10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no inlet or outlet
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no flow or wave action
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	golf course water features
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	golf course water features

14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	17,19,21	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	amphibian specues typical of small ponds have been observed as hve waterfowl
----	--	----------	--	--

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

8	█	█	█	█	█
---	---	---	---	---	---

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM: █	STREAM TYPE (ROSGEN): █
HAVE FISHERIES BEEN DOCUMENTED? <input type="checkbox"/> Yes <input type="checkbox"/> No	DOES THE STREAM SYSTEM APPEAR STABLE? <input type="checkbox"/> Yes <input type="checkbox"/> No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: █

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
11	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

13	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)



# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** Hillwood Enterprises, L.P.

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Written Narrative (NHDES-W-06-089) or Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached with the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

## SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)

ADJACENT LAND USE: golf course

CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT?  Yes  No

DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0

## SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Brendan Quigley, NHCWS #249

DATE(S) OF SITE VISIT(S):  
3/26/20 to 4/6/20

DELINEATION PER ENV-WT 406 COMPLETED?  Yes  No

CONFIRM THAT THE EVALUATION IS BASED ON:

- Office and  
 Field examination.

METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in field if "other"):

- USACE Highway Methodology.  
 Other scientifically supported method (enter name/ title):

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
WETLAND ID: EA8	LOCATION: (LAT/ LONG) 42.71944/71435656
WETLAND AREA: ~250 SF	DOMINANT WETLAND SYSTEMS PRESENT: Manmade basin
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? none	COWARDIN CLASS: PEM2Jx
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No if not, where does the wetland lie in the drainage basin? [REDACTED]	IS THE WETLAND PART OF: <input type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: NO IMPACT	PROPOSED WETLAND IMPACT AREA: [REDACTED]
<b>SECTION 4 - WETLANDS FUNCTIONS AND VALUES* (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> <li>1. Ecological Integrity (from RSA 482-A:2, XI)</li> <li>2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)</li> <li>3. Fish &amp; Aquatic Life Habitat (from USACE Highway Methodology: Fish &amp; Shellfish Habitat)</li> <li>4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)</li> <li>5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)</li> <li>6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)</li> <li>7. Nutrient Trapping/Retention &amp; Transformation (from USACE Highway Methodology: Nutrient removal)</li> <li>8. Production Export (Nutrient) (from USACE Highway Methodology)</li> <li>9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)</li> <li>10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)</li> <li>11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)</li> <li>12. Uniqueness/Heritage (from USACE Highway Methodology)</li> <li>13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)</li> <li>14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)</li> </ol> <p>First, determine if a wetland is suitable for particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal (Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective".</p>	

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)



“Important Notes” are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade basin in a managed landscape of golf course
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade basin in a managed landscape of golf course
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no water
4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no outlet
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	no outlet, drainage directed to this area infiltrates
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade basin in a managed landscape of golf course
7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no outlet
8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	very small, maintained edges
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade basin in a managed landscape of golf course
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,17	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	drainage directed to this basin infiltrates, no outlet, sediment is prevented from reaching river -very small, limited function
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	no flow or wave action
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade basin in a managed landscape of golf course
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade basin in a managed landscape of golf course

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	Manmade basin in a managed landscape of golf course
----	--	------------	---	---

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by NHF&G; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

8	█	█	█	█	█
---	---	---	---	---	---

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM: █ STREAM TYPE (ROSGEN): █

HAVE FISHERIES BEEN DOCUMENTED?  Yes  No DOES THE STREAM SYSTEM APPEAR STABLE?  Yes  No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: █

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
2	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
3	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
4	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
5	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
6	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
7	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
8	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
9	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
10	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
11	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█
12	<input type="checkbox"/> Yes <input type="checkbox"/> No	█	<input type="checkbox"/> Yes <input type="checkbox"/> No	█

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

13	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]
14	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]	<input type="checkbox"/> Yes <input type="checkbox"/> No	[REDACTED]

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland attached.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04 (please refer to the Coastal Area Worksheet for more information)



# Appendix A

## Wetland evaluation supporting documentation; Reproducible forms.

---

Below is an example list of considerations that was used for a New Hampshire highway project. Considerations are flexible, based on best professional judgment and interdisciplinary team consensus. This example provides a comprehensive base, however, and may only need slight modifications for use in other projects.



**GROUNDWATER RECHARGE/DISCHARGE**— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

### CONSIDERATIONS/QUALIFIERS

1. Public or private wells occur downstream of the wetland.
2. Potential exists for public or private wells downstream of the wetland.
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet.
10. Wetland contains only an outlet, no inlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g., springs).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
16. Piezometer data demonstrates discharge.
17. Other



**FLOODFLOW ALTERATION (Storage & Desynchronization)** — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

## CONSIDERATIONS/QUALIFIERS

1. Area of this wetland is large relative to its watershed.
2. Wetland occurs in the upper portions of its watershed.
3. Effective flood storage is small or non-existent upslope of or above the wetland.
4. Wetland watershed contains a high percent of impervious surfaces.
5. Wetland contains hydric soils which are able to absorb and detain water.
6. Wetland exists in a relatively flat area that has flood storage potential.
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland.
12. The watershed has a history of economic loss due to flooding.
13. This wetland is associated with one or more watercourses.
14. This wetland watercourse is sinuous or diffuse.
15. This wetland outlet is constricted.
16. Channel flow velocity is affected by this wetland.
17. Land uses downstream are protected by this wetland.
18. This wetland contains a high density of vegetation.
19. Other

**FISH AND SHELLFISH HABITAT (FRESHWATER)** — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.



## CONSIDERATIONS/QUALIFIERS

1. Forest land dominant in the watershed above this wetland.
2. Abundance of cover objects present.

### STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE

3. Size of this wetland is able to support large fish/shellfish populations.
4. Wetland is part of a larger, contiguous watercourse.
5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter.
6. Stream width (bank to bank) is more than 50 feet.
7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
8. Streamside vegetation provides shade for the watercourse.
9. Spawning areas are present (submerged vegetation or gravel beds).
10. Food is available to fish/shellfish populations within this wetland.
11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland.
12. Evidence of fish is present.
13. Wetland is stocked with fish.
14. The watercourse is persistent.
15. Man-made streams are absent.
16. Water velocities are not too excessive for fish usage.
17. Defined stream channel is present.
18. Other

Although the above example refers to freshwater wetlands, it can also be adapted for marine ecosystems. The following is an example provided by the National Marine Fisheries Service (NMFS) of an adaptation for the fish and shellfish function.

**FISH AND SHELLFISH HABITAT (MARINE)** — This function considers the effectiveness of wetlands, embayments, tidal flats, vegetated shallows, and other environments in supporting marine resources such as fish, shellfish, marine mammals, and sea turtles.

**CONSIDERATIONS/QUALIFIERS**

1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.
2. Suitable spawning habitat is present at the site or in the area.
3. Commercially or recreationally important species are present or suitable habitat exists.
4. The wetland/waterway supports prey for higher trophic level marine organisms.
5. The waterway provides migratory habitat for anadromous fish.
6. Essential fish habitat, as defined by the 1996 amendments to the Magnuson-Stevens Fishery & Conservation Act, is present (consultation with NMFS may be necessary).
7. Other



**SEDIMENT/TOXICANT/PATHOGEN RETENTION** — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

**CONSIDERATIONS/QUALIFIERS**

1. Potential sources of excess sediment are in the watershed above the wetland.
2. Potential or known sources of toxicants are in the watershed above the wetland.
3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.
4. Fine grained mineral or organic soils are present.
5. Long duration water retention time is present in this wetland.
6. Public or private water sources occur downstream.
7. The wetland edge is broad and intermittently aerobic.
8. The wetland is known to have existed for more than 50 years.
9. Drainage ditches have not been constructed in the wetland.

**STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.**

10. Wetland is associated with an intermittent or perennial stream or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.
17. Other



**NUTRIENT REMOVAL/RETENTION/TRANSFORMATION** — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

**CONSIDERATIONS/QUALIFIERS**

1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.

4. Potential sources of excess nutrients are present in the watershed above the wetland.
5. Wetland saturated for most of the season. Pondered water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained fine grained mineral or organic soils are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Opportunity for nutrient attenuation exists.
11. Vegetation diversity/abundance sufficient to utilize nutrients.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

12. Waterflow through this wetland is diffuse.
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
14. Water moves slowly through this wetland.
15. Other

**PRODUCTION EXPORT (Nutrient)** — This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.



#### CONSIDERATIONS/QUALIFIERS

1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland
3. Economically or commercially used products found in this wetland.
4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic vegetative diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).
11. “Flushing” of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants that are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring, however, no visible signs of export (assumes export is attenuated).
15. Other

**SEDIMENT/ShORELINE STABILIZATION** — This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.



#### CONSIDERATIONS/QUALIFIERS

1. Indications of erosion or siltation are present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. Potential sediment sources are present upstream.
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.
7. Wide wetland (>10') borders watercourse, lake, or pond.
8. High flow velocities in the wetland.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other





**WILDLIFE HABITAT** — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.<sup>1</sup>

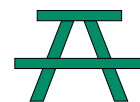
#### CONSIDERATIONS/QUALIFIERS

1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width.
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.
9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present.
13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)
16. Plant/animal indicator species are present. (List species for project)
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland contains or has potential to contain a high population of insects.
20. Wetland contains or has potential to contain large amphibian populations.
21. Wetland has a high avian utilization or its potential.
22. Indications of less disturbance-tolerant species are present.
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).
24. Other

---

<sup>1</sup>In March 1995, a rapid wildlife habitat assessment method was completed by a University of Massachusetts research team with funding and oversight provided by the New England Transportation Consortium. The method is called WEThings (wetland habitat indicators for non-game species). It produces a list of potential wetland-dependent mammal, reptile, and amphibian species that may be present in the wetland. The output is based on observable habitat characteristics documented on the field data form. This method may be used to generate the wildlife species list recommended as backup information to the wetland evaluation form and to augment the considerations. Use of this method should first be coordinated with the Corps project manager. A computer program is also available to expedite this process.

**RECREATION (Consumptive and Non-Consumptive)** — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.



#### CONSIDERATIONS/QUALIFIERS

1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

**EDUCATIONAL/SCIENTIFIC VALUE** — This value considers the suitability of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.



#### CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.
6. Wetland is located within a nature preserve or wildlife management area.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.
9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site is within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site is available.
12. Direct access to pond or lake at potential educational site is available.
13. No known safety hazards exist within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other

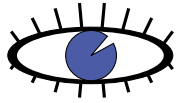


**UNIQUENESS/HERITAGE** — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

**CONSIDERATIONS/QUALIFIERS**

1. Upland surrounding wetland is primarily urban.
2. Upland surrounding wetland is developing rapidly.
3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands.
4. Three or more wetland classes are present.
5. Deep and/or shallow marsh or wooded swamp dominate.
6. High degree of interspersion of vegetation and/or open water occur in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake exists at potential educational site.
12. Two or more wetland classes are visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) are visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings are found within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland is within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.
27. Wetland has local significance because it serves several functional values.
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.
29. Wetland is known to contain an important archaeological site.
30. Wetland is hydrologically connected to a state or federally designated scenic river.
31. Wetland is located in an area experiencing a high wetland loss rate.
32. Other

**VISUAL QUALITY/AESTHETICS** — This value considers the visual and aesthetic quality or usefulness of the wetland.



**CONSIDERATIONS/QUALIFIERS**

1. Multiple wetland classes are visible from primary viewing locations.
2. Emergent marsh and/or open water are visible from primary viewing locations.
3. A diversity of vegetative species is visible from primary viewing locations.
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.
6. Visible surrounding land use form contrasts with wetland.
7. Wetland views absent of trash, debris, and signs of disturbance.
8. Wetland is considered to be a valuable wildlife habitat.
9. Wetland is easily accessed.
10. Low noise level at primary viewing locations.
11. Unpleasant odors absent at primary viewing locations.
12. Relatively unobstructed sight line exists through wetland.
13. Other

**ENDANGERED SPECIES HABITAT** — This value considers the suitability of the wetland to support threatened or endangered species.

**ES**

**CONSIDERATIONS/QUALIFIERS**

1. Wetland contains or is known to contain threatened or endangered species.
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.